

**10/576302**

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**THE FOLLOWING ARE THE ENGLISH TRANSLATION  
OF ANNEXES TO THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT (ARTICLE 34):**

Amended Sheets (Pages 14-16)

Claims

1. A catalyst which formally comprises zirconium dioxide ( $\text{ZrO}_2$ ), yttrium oxide ( $\text{Y}_2\text{O}_3$ ) and at least one oxide selected from among alkali metal oxides and alkaline earth metal oxides and in which the proportion of zirconium dioxide ( $\text{ZrO}_2$ ) is from 80 to 99 parts by mass, the proportion by mass of yttrium oxide ( $\text{Y}_2\text{O}_3$ ) is from 0.5 to 10 parts by mass and the proportion of alkaline earth metal oxide and/or alkali metal oxide is from 0.1 to 3 parts by mass.
2. The catalyst as claimed in claim 1, wherein the proportion of zirconium dioxide ( $\text{ZrO}_2$ ) is from 90 to 98 parts by mass, the proportion by mass of yttrium oxide ( $\text{Y}_2\text{O}_3$ ) is from 1.5 to 8 parts by mass and the proportion of alkaline earth metal oxide and/or alkali metal oxide is from 0.5 to 2 parts by mass.
3. The catalyst as claimed in claim 2, wherein the proportion of zirconium dioxide ( $\text{ZrO}_2$ ) is from 93 to 96 parts by mass, the proportion by mass of yttrium oxide ( $\text{Y}_2\text{O}_3$ ) is from 3.5 to 6 parts by mass and the proportion of alkaline earth metal oxide and/or alkali metal oxide is from 0.5 to 1 part by mass.
4. The catalyst as claimed in at least one of claims 1 to 3 which comprises an alkali metal oxide selected from among potassium oxide and sodium oxide.
5. The catalyst according to at least one of claims 1 to 3 which is in the form of granules, tablets, cylinders, rings or extrudates.
6. A process for preparing 1-olefins by catalytic dehydration (elimination of water) of alcohols at a temperature from 200 to 450 °C, in which a catalyst as claimed in any of claims 1 to 5 is used as catalyst and at least one secondary 2-alcohol or a mixture thereof is used as alcohol.
7. The process as claimed in claim 6, wherein at least one alcohol having from 5 to 27 carbon atoms is used.

8. The process as claimed in claim 7, wherein 2-hydroxyoctane is used as alcohol.
9. The process as claimed in at least one of claims 6 to 8, wherein a mixture comprising  
5 further alcohols and/or hydrocarbons and also, if desired, a diluent is used.
10. The process as claimed in at least one of claims 6 to 9, wherein the dehydration is carried out in the gas phase or the mixed liquid/gas phase.
- 10 11. The process as claimed in at least one of claims 6 to 10, wherein ketones are separated off and hydrogenated from the mixture obtained in the dehydration and the alcohols obtained are recirculated to the dehydration.
12. A composition which comprises at least one 1-olefin and is obtainable by a process as  
15 claimed in at least one of claims 6 to 11 in which the reaction product mixture from the dehydration is separated into an olefin fraction, an alcohol-containing fraction and one or more fractions comprising by-products, wherein the composition comprises 1-octene in a proportion of above 90% by mass.
- 20 13. The use of a composition as claimed in claim 12 for preparing aldehydes and/or alcohols by hydroformylation of the 1-olefin present in the composition.
14. The use as claimed in claim 13 for preparing plasticizer alcohols.
- 25 15. The use as claimed in claim 13 for preparing isononanol.
16. The use of a composition as claimed in claim 12 as comonomer for preparing polyolefins.

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**Abstract:**

The present invention relates to a process for preparing 1-olefins from 2-hydroxyalkanes by catalytic elimination of water under nonisomerizing conditions and to a catalyst which is particularly well-suited for this process and formally comprises yttrium oxide ( $\text{Y}_2\text{O}_3$ ),  
5 zirconium dioxide ( $\text{ZrO}_2$ ) and an alkali metal oxide and/or alkaline earth metal oxide.